

Linenger completes host of science experiments

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ence work and took inventory of tools and equipment that will be used for a space walk in mid-April by Mir 23 Commander Vasily Tsibliev and Linenger.

During breaks from their science work, the crew is generating oxygen by burning solid fuel oxygen generators. Approximately 23 candles have been used to maintain acceptable oxygen levels.

With enough oxygen generators on board to last several months, the crew has been instructed to concentrate on its regular flight plan activities and await the arrival of the next Progress resupply vehicle April 8 before attempting additional repairs on the primary oxygen generating system. In addition to new Orlan spacesuits for Tsibliev's and Linenger's space walk, the April 6 Proton launch will carry repair equipment for the Elektron system and additional oxygen candles.

One of the Elektron systems requires a

replacement pump and the other may need a new custom-made filter. Russian flight controllers believe the pump is malfunctioning in one and that contaminants may have clogged the filter in the other unit. The Elektrons use the process of electrolysis to separate breathing oxygen out of the processed waste water.

The Progress resupply ship also will carry supplies of food, equipment and personal effects for the crew. Once docked, Progress 234 will be unloaded and the crew will practice a manual docking, at a range of up to 8,000 meters, using the remotely operated rendezvous system, called TORU for its Russian acronym. The TORU system is required for use at greater distances since this manual method for docking is being phased in by Russian controllers in lieu of the automatic docking system. Though the crew members

kept busy with science work on the station, they also commented on being able to see the Statue of Liberty in New York Harbor and the recently discovered Comet Hale-Bopp.

Linenger began the Human Life Sciences Humoral Immunity Investigation which assesses the body's immune system response to an antigen vaccination. The experiment involves taking seven blood samples during a one month period to study the immune cells in the human body. Samples are collected at timed intervals to measure antibody production and to determine the effectiveness, extent and time course of the antibody response.

The Microgravity Opposed Flame Flow Spread was begun to help determine the processes that affect flame propagation when materials are exposed to varying air flow speeds in microgravity. Both the

Microgravity Glovebox and the Space Acceleration Measurement System are activated to support this experiment.

An Enhanced Dynamics Load Sensor session was performed to measure the forces exerted by the crew members on the Mir structure during daily activities.

The Human Life Sciences Sleep Investigation, a study that examines alterations to the body's immune system with relation to sleep in microgravity, continued last week. The experiment is designed to provide long-term data on the physiology and behavior of human sleep under prolonged microgravity conditions. This sleep investigation experiment is scheduled periodically throughout Linenger's flight.

The 96-hour Liquid Metal Diffusion experiment sample was completed last Monday. LMD is designed to evaluate material dynamics and uses the Microgravity Isolation Mount to reduce or eliminate vibrations that could disturb the sample processing.



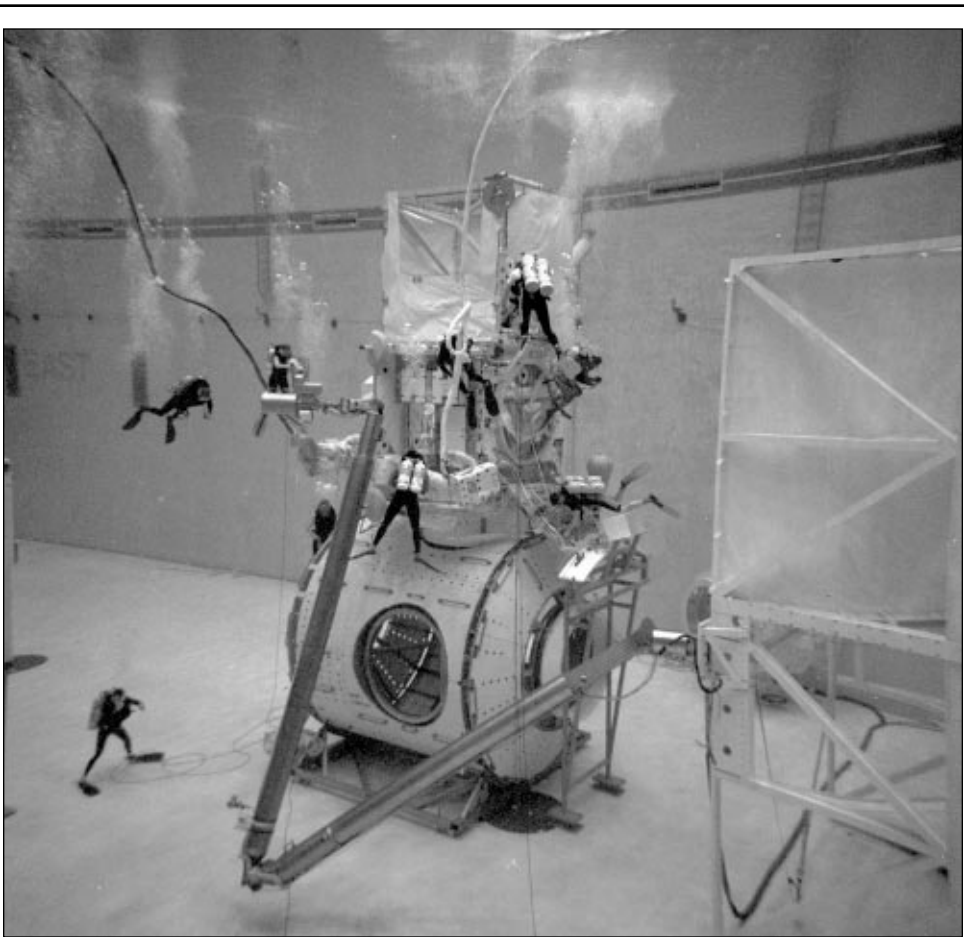
Managers eye Columbia launch status

The seven-member crew of STS-83 is less than three weeks away from a ride into space aboard Space Shuttle *Columbia* to conduct 16 days of science operations.

Launch is scheduled for 1:01 p.m. April 3 for the Microgravity Science Lab-1 mission, a collection of microgravity experiments housed in the Spacelab long module. MSL features 19 materials science investigations in four major facilities that will bridge the gap between Spacelab and International Space Station research.

Shuttle managers meeting in the Flight Readiness Review this week were expected to clear *Columbia* for launch pending resolution of questions regarding dynatube seals in the right Orbital Maneuvering System pod. Concerns over the seals and how they were installed were raised earlier this week. A review of processing documentation and x-rays will be used to resolve the issue.

Commander Jim Halsell, Pilot Susan Still, Payload Commander Janice Voss, Mission Specialists Don Thomas and Michael Gernhardt and Payload Specialists Roger Crouch and Greg Binter took part in the final dress rehearsal last week during the Terminal Countdown Demonstration Test at Launch Pad 39A. Thomas, hobbled by a broken ankle since January, has been granted doctor's permission to fly on STS-83. Astronaut Cady Coleman, enlisted and trained as Thomas' backup, has been removed from the training mix.



SPACE STATION TEST—Two more tests were completed this week to prepare astronauts and space builders for the real work ahead to build the International Space Station. Top: Divers prepare for astronaut verification tests in the new Neutral Buoyancy Laboratory at the Sonny Carter Training Facility. ISS Program Product Group 2 is conducting space walk simulations to verify designs and operations, and to test assembly and maintenance techniques for the Integrated Truss Segment (ITS) Z1 and ITS P6. These truss segments will be launch on assembly flights 3A and 4A. Right: Astronaut Chris Hadfield removes a thermal shroud covering a heat pipe radiator attached to ITS Z1 to verify its design for the flight 4A mission.



JSC photos 97-03377 and 97-03376 by Robert Markowitz

There is a two and a half hour launch window for STS-83. Landing is planned for April 19 at 7:37 a.m. at Kennedy Space Center.

In Palmdale, Calif., *Endeavour* is scheduled to roll out Monday following an extended period of servicing. Riding atop the Shuttle Carrier Aircraft, *Endeavour* is scheduled to fly into Ellington Field about 9 a.m. CST Thursday to refuel before returning to KSC. Public viewing will be offered from 10 a.m.-noon.

Health talk eyes osteoporosis

Osteoporosis will be the topic of a Total Health presentation at 11:30 a.m. today in the Bldg. 30 auditorium.

Dr. Linda Shackelford, an orthopedic surgeon and the technical lead for the Bone and Muscle Laboratory at JSC, will present "No Bones About It-Osteoporosis And You." All JSC civil service and contractor employees are invited. For more information, contact the JSC Clinic at x34111.

Chamber crew to talk to workers

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can hardly express my feelings right now but I just want to say thanks to everyone. The team is just awesome and management very supportive and it has all paid off. To me this just demonstrates our capability. We can do it and go back to the Moon and on to Mars."

"We have had a lot of support during the test and it goes beyond anything I can explain," Staat said. "This is the teamwork and spirit that got us to the Moon. It is the type of teamwork that is going to get us to Mars."

JSC Director George Abbey, Engineering Director Leonard Nicholson and Crew and Thermal Systems Division Chief Will Ellis were on hand to congratulate the team and encourage them to continue their research efforts.

"Congratulations for a job well done," Abbey said. "I don't think there is anybody here in Houston at this center that doesn't think a lot about what you guys have done. This is the start of something real significant and I hope we can continue it and keep it going. I think you got us off to a great start and we are very proud of all of you."

Before the hatch opening, family members

gathered outside the chamber to greet their relatives in a private ceremony. Mary Staat anxiously waited for grandson David to emerge from the chamber.

"This is really exciting," Staat said. "It might be a little overwhelming for them when they come out after being in there alone for three months."

Fred Smith's mother waited to see her son and looked toward the future.

"I think this test is very interesting. It is quite an experience for all of them," Lora Smith said. "Hopefully it will be something that they can use in the future for space travel."

During the test, team members provided daily status reports on the operation of the air revitalization and water recovery systems, as well as crew habitability criteria. The team also supported evaluation of other planned space station activities including medical, food systems and specialized shifts for monitoring consoles in the control room.

The four volunteers will tell JSC employees what it was like to live and work in the chamber at 3:30 p.m. Monday, March 31, in Teague Auditorium.

Bockting leaves legacy others aspire to obtain

[Editor's note: This is the third of four articles on the women of JSC for Women's History Month.]

By Jessie Hendrick

The Marilyn J. Bockting Award for Secretarial Excellence is given each month to the most outstanding secretary at JSC and is named in memory of a JSC employee who was well known around the center and in the Clear Lake Area.

Bockting held a variety of positions in her career, beginning as a clerk-typist in the Office of Naval Intelligence. She progressed to secretary then executive secretary while working for Army Intelligence at Douglas Aircraft Co. and Space and Electronics at Ford Motor Co.

In 1963, Bockting's boss, Jim Elms, was recruited by NASA to become the deputy director of the Manned Spacecraft Center in Houston. Bockting joined him at NASA as his administrative assistant. In 1973, she was selected as the assistant manager of the Program Administration Office, and in 1975, was promoted to manager, heading an organization that provided administrative services to all program office employees. While at JSC, Bockting presented secretarial training seminars to new clerical employees. In cooperation with the Civil Service Commission, she presented a 14-week training course on the behavioral aspects of secretarial practices.

As a part of the Clear Lake community, she helped to form the Spaceland Toastmasters Club, serving as its first educational vice-president and later as president. In 1979, she was elected lieutenant governor for the Eastern Division of District 56, Toastmaster International. Bockting was recognized nationally in 1975 when she was selected by the American Business Women's Association as one of its Top 10 women of the year. She also was the recipient of the coveted Abbey Award in 1983, which is given each year by the Clear Lake Chapter of ABWA.

Upon her retirement in 1980, Bockting started her own company, Career Resources, a service designed to assist women in finding suitable careers. In 1981, she relocated to California and lived there until her death in 1985.

The person who receives the Marilyn J. Bockting award exemplifies and displays willingness, dependability, dedication, motivation, flexibility and proficiency.

A few of the early recipients of the award are Carol Irby, Mary Nordin, Estella Hernandez Gillette, Teresa Sullivan and Paula Scheffman.

Deadlines change for Roundup submissions

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The Roundup also will provide more information about personnel, including new arrivals, moves and departures; safety activities and alerts; organizational accomplishments and adjustments; and community outreach activities and opportunities. Since the health and fitness of all employees are important to the center, new features also will include regular updates on Gilruth Center recreational opportunities, league sign-ups and standings.

With publication scheduled for every other Friday, deadlines will be Friday, three weeks before publication. Stories and ideas should be submitted to Managing Editor Karen Schmidt at Bldg. 2 Rm. 181 or e-mail at kschmidt@gp301.jsc.nasa.gov.

One big difference in the new Roundup will be the absence of the Swap Shop classified ad section. JSC's Human Resources Office will take on the responsibility of helping employees buy and sell personal items through bulletin boards in both cafeterias. These bulletin boards will allow employees to post their own notices. Detailed plans for how the bulletin board system will work are being developed.